

AMENDMENT TO THE CLAIMS

1. (original) A radar level gauge having a defined range resolution comprising:

an antenna, an electronics unit, a waveguide feed between the electronics unit and the antenna;

wherein said waveguide is essentially straight and has a 90°-symmetric cross section and is arranged to accommodate two essentially orthogonal waveguide modes; said waveguide further having a length below two times said range resolution of said radar level gauge.

2. (previously presented) The radar level gauge of claim 1, further comprising:

a tank sealing,

wherein said waveguide feed is provided with a waveguide joint enabling said electronics unit to be detached from and attached to said antenna with said tank sealing providing maintained sealing.

3. (previously presented) The radar level gauge of claim 1, wherein said two essentially orthogonal waveguide modes are LHCP and RHCP.

4. (previously presented) The radar level gauge of claim 2, wherein said two essentially orthogonal waveguide modes are LHCP and RHCP.

5. (previously presented) The radar level gauge of claim 1, wherein a waveguide feed, an arrangement for obtaining said two essentially orthogonal waveguide modes and microwave transmitter and receiver circuits are arranged on the same Printed Circuit Board of said electronics unit.

6. (previously presented) The radar level gauge of claim 2, wherein a waveguide feed, an arrangement for obtaining said two essentially orthogonal waveguide modes and microwave transmitter and receiver circuits are arranged on the same Printed Circuit Board of said electronics unit.

7. (previously presented) The radar level gauge of claim 3, wherein a waveguide feed, an arrangement for obtaining said two essentially orthogonal waveguide modes and microwave transmitter and receiver circuits are arranged on the same Printed Circuit Board of said electronics unit.

8. (previously presented) The radar level gauge of claim 4, wherein a waveguide feed, an arrangement for obtaining said two essentially orthogonal waveguide modes and microwave transmitter and receiver circuits are arranged on the same Printed Circuit Board of said electronics unit.

9. (previously presented) The radar level gauge of claim 1, wherein said antenna and said tank sealing comprises a horn antenna having a 90°-symmetric cross section which is sealed by a dielectric material filling at least part thereof along said waveguide.

10. (previously presented) A method for improved radar level gauging using a radar level gauge having a defined range resolution, said radar level gauge comprising an antenna, an electronics unit, a waveguide feed between the electronics unit and the antenna, the method comprising:

providing as said waveguide feed an essentially straight waveguide having a 90°-symmetric cross section;

arranging said waveguide to accommodate two essentially

orthogonal waveguide modes; and  
giving said waveguide a length below two times said range  
resolution of said radar level gauge.

11. (currently amended) The method of claim ~~11~~10, further comprising:

providing a tank sealing, and  
providing said waveguide feed with a waveguide joint  
enabling said electronics unit to be detached from and  
attached to said antenna with said tank sealing  
providing maintained sealing.

12. (previously presented) The method of claim 10, further comprising:

arranging said waveguide to accommodate as said two  
essentially orthogonal waveguide modes LHCP and RHCP.

13. (previously presented) The method of claim 11, further comprising:

arranging said waveguide to accommodate as said two  
essentially orthogonal waveguide modes LHCP and RHCP.

14. (previously presented) The method of claim 10, further comprising:

arranging a waveguide feed, an arrangement for obtaining  
said two essentially orthogonal waveguide modes and  
microwave transmitter and receiver circuits on the same  
Printed Circuit Board of said electronics unit.

15. (previously presented) The method of claim 11, further comprising:

arranging a waveguide feed, an arrangement for obtaining  
said two essentially orthogonal waveguide modes and

microwave transmitter and receiver circuits on the same Printed Circuit Board of said electronics unit.

16. (previously presented) The method of claim 12, further comprising:

arranging a waveguide feed, an arrangement for obtaining said two essentially orthogonal waveguide modes and microwave transmitter and receiver circuits on the same Printed Circuit Board of said electronics unit.

17. (previously presented) The method of claim 13, further comprising:

arranging a waveguide feed, an arrangement for obtaining said two essentially orthogonal waveguide modes and microwave transmitter and receiver circuits on the same Printed Circuit Board of said electronics unit.

18. (previously presented) The method of claim 10, further comprising:

providing as said antenna a horn antenna having a 90°-symmetric cross section; and  
providing as and said tank sealing a dielectric material filling at least part of said horn antenna along said waveguide.

19. (currently amended) A radar level gauging system, comprising at least one radar level gauge ~~according to claim 1~~ having a defined range resolution comprising:

an antenna, an electronics unit, a waveguide feed

between the electronics unit and the antenna;

wherein said waveguide is essentially straight and has

a 90°-symmetric cross section and is arranged to accommodate two essentially orthogonal waveguide

modes; said waveguide further having a length  
below two time said range resolution of said radar  
level gauge.